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BENTHONIC FORAMINIFERA FROM THE UPPER CRETACEOUS OF THE

ABU-KHEMA WELL NO. I, S. IRAQ

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The Upper Gretaceous succesion in the Abu-Khema well no I (Figure I) measures about 1000 m. thickness, is lithologically compsed of limestone, dolomite,chalky limestone, marl and shale. the succession, between depths 1050 to 1500 meters contains abundant benthonic and planktonic forminifera. The species of Globotruncana Cushman, Heterohlix Ehrenbergc Sigalia Reiss and Pseudotextularia Rzehak in general have same vertical range as those descibed from the subsurface Upper

Gretaceous biozones in south western Iraq (Darmoian 1975a, 1975b). Accordingly the above interval is dated as Santonian-Mastrichtian.

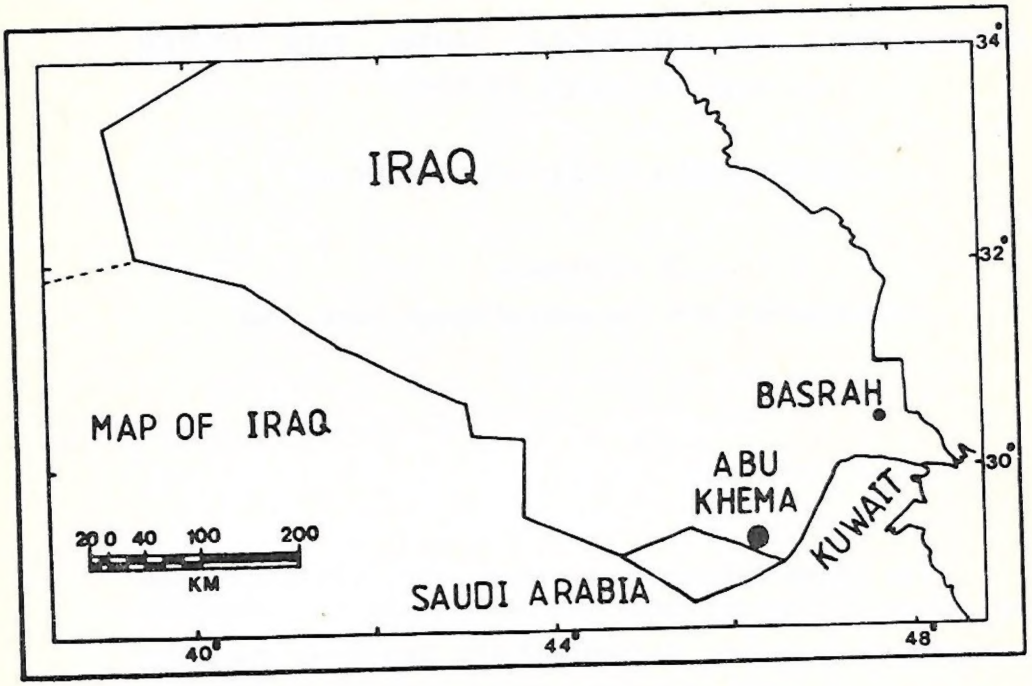


Figure 1 Location map

SYSTEMATIC PALEONTOLOGY

The classification followd here is taken form the Treatise on In-vertebrate Paleontology, Loeblich and Tappan (1964). Twelve species and subspecies belong to five genera and three families are reported. Dimension given are those of the figured specimens. The illustrated specimens are at present in the possession of the outhor.

Drder **FORAMINIFERIDA** Eichwald, 1830.

Superfamily **NODOSARIACEA** Ehrenberg, 1838.
Family **NODOSARIIDAE** Ehrenberg, 1838.
Genus **NEOFLABELLINA** Bartenstein, 1948.
Neoflabelliona rugosa (d Ordingny).

Plate l, fig. 1-2

Flabellina rugosa D, ORBIGNY, 1840, p. 23, pl. 2, fig. 4-5. 7.

Neoflabellina rugosa (d,Orbigny), SLITER, 1968, p.71, pl.8, fig.21.

Remarks: The rare and poorly preserved specimens of this species have strongly compressed rhomboid test shapes with flat and parallel sides. Sutures are raised and sharp, periphery truncated and chambers early planispiral later chevron-shaped. Surface in most specimens is cemented by claclcareous materials obscuring the ornamentations.

Dimensions: Length (figure I),O.85mm., breadth, 0.55,thickeness, 0.15mm.; Length (figure 2), O.70mm., breadth, 0.65mm., thickness, 0.18mm.

Superfamily **BULIMINACEA** Jones, 1875

Family **TURRILINIDAE** Cushman, 1927
Genus **PRAEBULIMINA** Hofker, 1953
Praebulimina aspera (Cushman and Parker)

Plate l, figure 3

Bulimina aspera CUSHMAN and Parker, 1940, p.44, pl.8,figs. 18-19.

Praeblimine aspera (Cushman and Parker), SLITER, 1968, p.83,pl.ll, figs. ll-13

Remarks: Praebulimina aspera (Cushman and Parker) is distinguished by its elongate, two or more times as long as broad and slightly tappering test, slightly to moderately inflated chambers which are vertically arranged, depressed sutures and initially roughened surface. The species closely resembles **Praebulimina kickapooensis** (Cole) reported foem the Upper Cretaceous of Texas.

Dimensions: Length, 0.42mm, diameter, 0.16mm.

Praebulimina carseyae (Plummer)

Plate l, figure 4

Buliminella carseyae PLUMMER, 1931, p. 179, pl. 8, fig. 7.
Buliminella carseyae PLUMMER, CUSHMAN, 1946, p. 119, p.50, figs. 17-20
praebulimina carseyae (plummer), HOFKER, 1957, p. 192; figs. 235-–36,237.
Remarks: This elongate and tappering small species is rare in our materials. It is distinguished by having four inflated chambers per whorl and large adult part.

Dimensions: Length., 0.22mm., diameter, 0.13mm.

Praebulimina cushmani (sandidge)

Plate l, figure 5

Buliminlla cushmani SANDLDGE, 1932, p. 280, pl. 42, figs. 18-19.
Buliminella cushmani SANDIDGE, CUSHMAN, 1946, p. 119, pl. 50, fig. 15.

Praebulimina cushmani (Sandidge), GRAHAM and CHURCH, 1963, p. 54, pl. 6, figs. 2-3.

Praebulimina cushmani (Sandidge), SLITER, 1968, p. 83, pl. 11, fig. 15.

Remarks: The species is closely related to **praebulimina carseyae,** differs in the slighter inflation of the adult chambers and in the smaller size of the test.

Dimensions: Length, 0. 20mm., diameter, 0. 14mm.

Praebulimina kickapooensis (Cole)

Plate l, figure 6

Bulimina kickapooensis COLE, 1938, p. 45, -p. 3, fig. 5.

Bulimina kickapooensis COLE, CUSHMAN, 1946, p.123, pl. 51, figs. 11-12, 14.

Praebulimina kickapooensis (Cole), SLTIER, 1968, p. 84, pl. 11, figs. 17-19.

Remarks: The species is closely resembles **Praebulimina aspera** (Cushman and Parker) but differs in having larger test size and longer and lesser inflated chambers.

Dimensions: Length, 0. 30 mm., diameter, 0. 18 mm.

Praebulimina lajollaensis Sliter

Plate l, figures 7-8

Praebulimina lajollaensis SLITER, 1968, p. 84, pl. 12, figs. 9- 10.

Remarks: Only six specimens were recovered, they are nearly identical with the illustrated specimens of Sliter (1968). The species is easily distinguished by its globular to subglobular test shape and 3 or 4 inflated chambers.

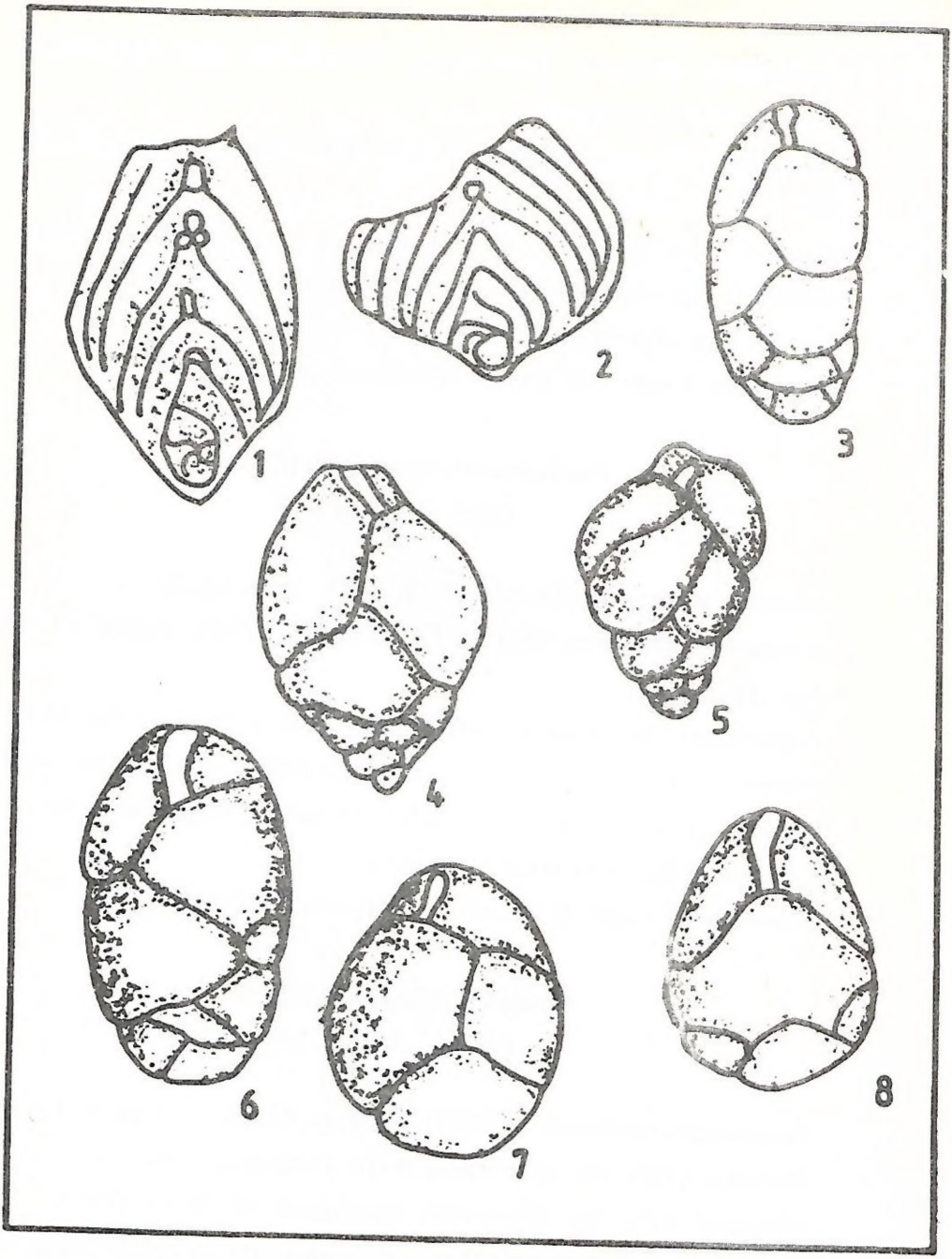


Plate 1. (1 – 2): Neoflabellina rugosa. (3): Praebulimina aspera. (4): p. caseyae. (5): p. cushmani. (6): p. kickapooensis. (7-8): p. lajollaensis.

Remarks: The main characters of **Bolivina decurrens** (Ehrenberg) are the elongate and strongly compressed small test, slowly tappering spinose margins, angled chambers and the character of early chambers which are overlapping the proloculus. Some specimens have combined **Coryphostoma plaita** (Carsey) and **Bolivina decurrens characters making an advance towards becoming uniserial last stage with elliptical to rounded terminal aperture. Several froms were found have distinctly twisted early stage.**

Dimensions: Length (figure 1), 0.25 mm., breadth, 0.11mm., thickness, 0.06mm.; length (figure 2), 0.19 mm., breadth, 0.09 mm., thickness, 0.04 mm.

Bolivina gemma Cushman
Plate 2, figure 5

Bolivina gemma Cushman, 1927, p. 87, pl. 12, fig. 3.
Loxostoma gemmum (Cushman), CUSHMAN, 1946, p. 129, pl. 54figs. 1-3.
Loxostoma gemma (Cushman), MELLO, 1969, p. 81, pl. 9, fig. 7.
Remarks: The species is represented by nine specimens, has a large test size, sutural prominences alonge a zigzag shaped median axis and twisted early portion of the test.

Dimensions: Length (figure 7), 0. 30 mm., diameter, 0. 26 mm.; length (figure 8), 0. 28 mm., diameter, 0. 23 mm.

Family BOLIVINITIDAE Cushman, 1927

Genus BOLIVINA d'Orbigny, 1839
Bolivina decurrens (Ehrenberg)

Plate 2, figures 1-2

Grammostomum? decurrens EHRENBERG, 1854, pl. 30, fig. 17.

Bolivina decurrens (Ehrenberg), CUSHMAN, 1946, p. 127, pl. 53,figs. 12-13.

Bolivina incrassata incrassata Reuss

Plate 2, figure 4

Bolivina incrassata REUSS, 1851, p. 29, pl. 5, fig. 13.

Bolivina Incrassata REUSS, GRAHAM and CHURCH, 1963, p. 52, pl. 5, fig. 26.

Bolivina incrassata REUSS, SLITER, 1968, p. 88, pl. 12, fig. 14.

Remarks: The separation of this species from **Bolivina incrassata gigantea** Wicher was based on size differences, the latter has larger size development.

Dimensions: Length, O.26 mm., breadth, O.15 mm., thickness, O.06 mm.

Bolivina incrassata gigantea Wicher

Plate 2, figure 3

Bolivina incrassata Reuss forma **gigantea** WICHER, 1949, p. 85 (English), pl. 5, figs. 2-3.

Bolivina incrassata gigantea WICHER, BETTENSTAEDT and WICHER, 1955, p. 502, pl. 2, fig. 19.

Dimensions: Length, O.4. mm., breadth, O.16 mm., thickness, O.06 mm.

Genus BOLIVINOIDES Cushman, 1927

Bolivinoides draco (Marsson)

Plate 2, figures 6-7

Bolivina draco MARSSON, 1878, p. 157, pl. 3, fig. 25.

Bolivinoides draco draco (Marsson), HILTERMANN and KOCH, 1950, p. 598, 1, 72- 73; 2- 4, 52- 54, 58- 60; 5, 53, 69- 70.

Bolivinoides draco draco (Marsson), VAN HINTE, 1963, p. 106, pl. 14, fig. 3.

Bolivinoides draco draco (Marsson), SLTTER, 1968, p. 88, pl. 12, fig. 17 (see synonymy).

Bolivinoides draco (Marsson), HANZLIKOVA, 1970, p. 81, pl. 19, figs. 10- 11.

Remarks: The species has a triangular compressed test and distinct median sulcus which is branched to continuous riblike ornamentation.

Dimensions: Length (figure 6), 0. 35 mm., breadth, 0. 24 mm., thickness, o. 14. mm; length (figure 7), 0.25mm., breadth, 0. 2. mm., thickness o. 14mm.

Superfamily CASSIDULINACEA d'orbigny, 1839.

Family CAUCASINIDAE Bykova, 1959

Genus CORYPHOSTOMA Loeblich and Tappan, 1962

Coryphostoma plaita (Carsey)

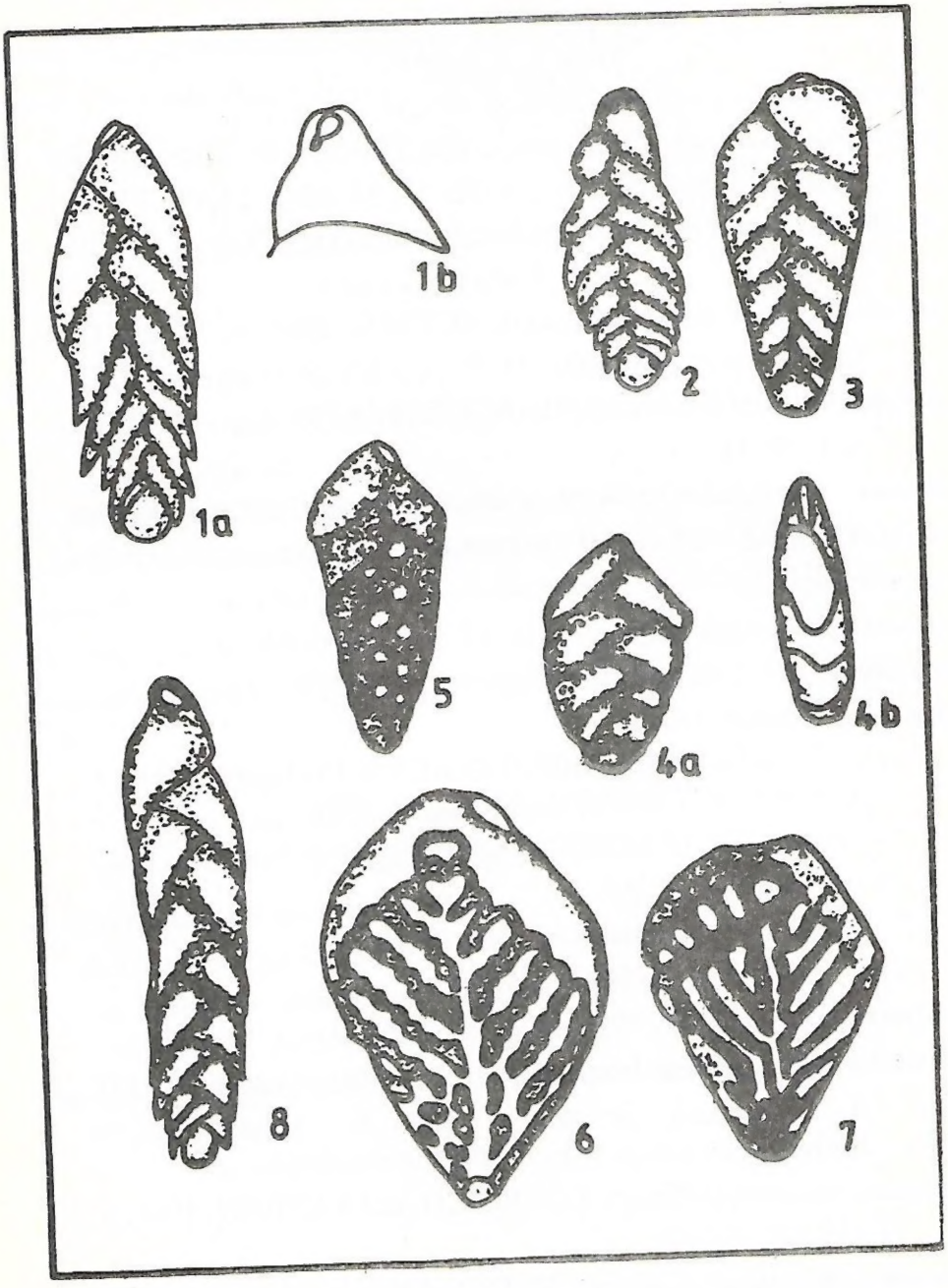
Plate 2, figure 8

Bolivina plaita CARSEY, 1926, p. 26, pl. 4, fig. 2.

Plate 2. (1-2): Bolivina decurrens. (3): B. incrassata gigantea. (4): B. incrassata incrassata. (5): B. gemma. (6-7): Bolivinoides draco. (8): coryphostoma plaita.

Coryphostoma plaita (Carsey), LOEBLICH and TAPPAN, 1964, p. C733, fig. 600 (8).

Coryphostoma plaitum (Carsey), SLTER, 1968, p. 112, pl. 19, fig. 13.


1a
1b
2
3
4a
4b
5
6
7
8

Coryphostoma plaita (Carsey), HANZLIKOVA, 1970, p. 120, pl. 35, fig. 5.

Remarks: The specimens of this species have elongate and slightly compressed shape, rounded periphery and early angular projections of Chambers. chambers biserially arranged with tendency to become uniserial. Several froms were fond have twisted early portion.

Dimensions: Length, 0. 35 mm, breadth, 0. 09 mm.

Summery

During the micropaleontological investigation of the Upper Gertaceous foriniferal content in Abu-Khema well no. I, by the author, the folowing association of benthonic species and sub-species was identified: Bolivina decurens, B. incrassata incrassata, B. incrassata gigantea, B. gemma, Bolivinoides draco, Coryphostoma plaita, Neoflabellina rugosa, Praebulimina aspera, P. carseyae, P. cushmani, P. kickapooensis and P. lajollaensis.

This paper is to report the first kown occurrence of these species form Iraq.

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الخلاصة

أثناء أجراء الفحص الأعتيادي للنماذج الصخرية في بئر أبو خيمة رقم ١ الواقع قرب منطقة الحياد في جنوب شرقي العراق، عثر على ١٢ أحفره مجهرية مهمة وتم تصنيفها حيث ظهرت انها تعود الى رتبة الفورامنيفر القاعية التي عاشت في بحار العصر الطباشيري العلوي (سانتونيان ــ ماستريختيان). ويعتبر هذا أول تسجيل لمثل هذه الأحافير في العراق.